



# Borough of Torquay.

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## ANNUAL REPORT

OF THE

## Medical Officer of Health

For 1900.

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MR. MAYOR, ALDERMEN, AND COUNCILLORS,—

I beg to submit my Annual Report for 1900, which is the twenty-third I have made for the Urban District of Torquay.

Hitherto my duty has been to work on the figures supplied by the census of 1891, but during the past year a great alteration has been effected, inasmuch as St. Mary-Church and part of Cockington have now been amalgamated with Torquay, and this necessitates a recalculation in respect of the area and population of the enlarged borough.

The area within the new boundaries of the borough is 3,879 acres.

In 1891 the population was as follows :—

Torquay	...	...	25,488
St. Mary-Church	...	...	6,846
Cockington	...	...	1,717
<hr/>			
Total	...	...	34,051

But during the process of amalgamation it was found desirable to exclude the rural portions of St. Mary-Church and Cockington, and I have not been able to ascertain the exact population of these portions. Perhaps it may be 200 or 250, and this would bring the total down to 33,800. But in the course of the past ten years hundreds of houses have been built and occupied in Cockington, and very many in St. Mary-Church and Torquay ; and consequently I think that 36,000 would be a safe estimate on which to calculate in this report. Fortunately a fresh census will soon be made, and our doubts set at rest.

As I have been hitherto Medical Officer of Health for St. Mary-Church as well as Torquay, I have all the papers and figures wherewith to compile this report ; and Dr. Morgan, who was Medical Officer of Health for Cockington until November 9th last, has supplied me with his papers and past annual reports, so that as far as statistics are concerned I have all the necessary material for drawing up the first annual report for the enlarged Borough of Torquay.

#### BIRTH RATE.

During 1900 there were 559 births, viz., boys, 301 ; and girls, 258. This yields a rate of 15·5 per 1,000.

The birth rate for England and Wales in 1900 was 28·9.

## DEATH RATE.

The number of deaths registered was 488, or a rate of 13·6 per 1,000. This rate, however, is the gross and needs correction, because 58 deaths occurred among non-residents, and after deducting these the nett total will be 430, or a rate of 12 per 1,000.

The death rate for England and Wales in 1900 was 18·3.

I now wish to draw your attention to the following table, which gives the comparative results for the five years previous to 1900 ; and an explanation is necessary why five, instead of ten years as usual. Although all the statistics necessary for Torquay and St. Mary-Church are at hand, those for Cockington exist only from November, 1894, as previous to this date Cockington belonged to Newton Abbot Rural Sanitary District, and as far as I know no separate calculations or reports were made on its account.

It will be noticed that the number of births has a marked tendency to diminish, very nearly 100 less than in 1895, and 67 less than the average for five years.

But a considerable improvement is shown in the number of deaths occurring in children under one year of age, there being 32 less than in 1895, and 21 less than the average for five years. It is also satisfactory to notice that the total number of deaths has very much diminished : nearly 100 less than in 1895, and 61 less than the average for five years.

The nett total is also satisfactory, viz., 95 less than in 1895, and 62 less than the average. Consequently the nett rate is 12, as against 15·1 in 1895 ; and 13·8 the average for five years.



COMPARATIVE TABLE AS REQUIRED BY THE LOCAL GOVERNMENT BOARD.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		DEATHS UNDER ONE YEAR OF AGE.		DEATHS AT ALL AGES. TOTAL.		DEATHS IN PUBLIC INSTITU- TIONS.	Deaths of Non- Residents registered in District.	Deaths of Residents registered beyond District.	DEATHS AT ALL AGES. NETT.	
		Number.	Rate.*	Number.	Rate per 1,000 Births registered.	Number.	Rate.*				Number.	Rate.*
1	2	3	4	5	6	7	8	9	10	11	12	13
1895.	35000	652	18.6	102	156.4	583	16.7	41	55		528	15.1
1896.	35300	650	18.4	107	164.6	569	16.1	43	41		528	14.9
1897.	35500	630	17.7	81	128.6	502	14.1	43	83		419	11.8
1898.	35700	626	17.6	83	132.6	529	14.8	53	70		459	12.9
1899.	35900	573	15.9	84	146.6	570	15.9	31	49		521	14.5
Averages for years 1895--1899.	35480	626	17.6	91	145.8	550	15.5	42	59		491	13.8
1900.	36000	559	15.5	70	125.2	488	13.6	41	58		430	12.

\* Rates calculated per 1,000 of estimated population.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

The following table gives the details of this mortality :—

# MORTALITY IN THE BOROUGH OF TORQUAY DURING 1900.

CAUSES OF DEATH.	DEATHS IN WHOLE DISTRICT AT SUBJOINED AGES.							Non-residents.	Nett result.	Deaths in Public Institutions.
	All ages.	under 1	1 and under 5	5 and under 15.	15 & under 25.	25 & under 65.	65 & up-wards			
Small-pox .. ..										
Measles .. ..	2	1		1					2	
Scarlet Fever .. ..										
Whooping-cough .. ..	1	1							1	
Diphtheria and Membranous croup .. ..										
Croup .. ..										
Fever { Typhus .. ..										
Enteric .. ..										
Other continued .. ..										
Epidemic influenza .. ..	21		1			7	13	4	17	
Cholera .. ..										
Plague .. ..										
Diarrhoea .. ..	13	11				1	1	2	11	1
Enteritis .. ..	3	3						1	2	
Puerperal fever .. ..										
Erysipelas .. ..										
Other septic diseases .. ..	2				1	1			2	
Phthisis .. ..	64	1		2	20	39	2	26	38	24
Other tubercular diseases .. ..	12	1	4	4		3			12	
Cancer, malignant disease .. ..	29				16	13		1	28	2
Bronchitis .. ..	42	6	4			5	27	3	39	2
Pneumonia .. ..	21	7	2			7	5	2	19	1
Pleurisy .. ..	3			1		1	1	1	2	1
Other diseases of respiratory organs .. ..	6					4	2		6	
Alcoholism .. ..										
Cirrhosis of liver .. ..	9					9			9	1
Venereal diseases .. ..										
Premature birth .. ..	15	15							15	
Diseases and accidents of parturition .. ..										
Heart diseases .. ..	56		1			24	31	10	46	4
Accidents .. ..	10	1	1			7	1	1	9	1
Suicides .. ..	1						1		1	
All other causes .. ..	178	23	8	1	2	49	95	7	170	4
All causes .. ..	488	70	21	9	39	170	179	58	430	41

The zymotic death rate is .44, as compared with 1.25 in 1899.

Although this new arrangement of classifying the causes of death into thirty-two divisions, instead of twenty-one as hitherto, is a distinct improvement, it has one drawback, viz., it is almost impossible to compare the details with those of previous years, but I will endeavour to do so in the more salient points.

## MEASLES AND WHOOPING COUGH.

In the first place there is a significant absence of a heavy mortality from measles and whooping cough. This year only three deaths are credited to these most fatal and unmanageable diseases, instead of thirty-nine last year.

## INFLUENZA.

There was a serious epidemic of influenza in the early part of the year, with a fatal result in twenty-one instances; but how many other sufferers were rendered more or less miserable for life, we shall never know.

## DIARRHŒA AND ENTERITIS.

Sixteen deaths were ascribed to these two diseases, which is much higher than usual. The Local Government Board have issued fresh regulations in respect of the term diarrhœa, and these have received the support of the Incorporated Society of Medical Officers of Health. Medical practitioners have been in the habit of using a variety of terms to account for a fatality in which diarrhœa has had more or less to do, and this has led to much confusion. In future it is to be hoped that these terms will be disused, and diarrhœa must mean epidemic diarrhœa and nothing else; and enteritis must be understood to stand for inflammatory disease of the intestines. When diarrhœa simply occurs in the course of some other disease, the death should be ascribed to such.

## PHTHISIS AND OTHER TUBERCULAR DISEASES.

There have been fewer deaths than usual ascribed to Phthisis this year, and this is due I think to the new sub-division "other tubercular diseases." Together these two divisions have seventy-six deaths, which is about the average previously entered under phthisis alone. During the past year there has been sent to each



household where a death from phthisis has taken place one of the circulars issued by the “National Association for the Prevention of Consumption and other Forms of Tuberculosis,” with an offer to fumigate the room occupied by the deceased. Many have accepted this invitation, and formalin has been employed; some replied that disinfection by sulphur had already been effected, but in too many instances no notice was taken of the circular. This is much to be regretted, but we must persevere, and continue in what is, after all, the education of the public in this most important question.

**CANCER, MALIGNANT DISEASE.**—This is a new division and a very proper one, and surely not before it was wanted. The public has of late been much exercised in the matter of phthisis and consumption; but I strongly suspect there will be some outcry about the prevalence of cancer. There have been twenty-nine deaths from the various forms of cancer, or nearly one in seventeen of the total mortality.

#### BRONCHITIS, PNEUMONIA, AND PLEURISY

Contribute sixty-six deaths, which is somewhat less than usual, seventy-three being the average for five years. This may be accounted for by the very mild spring and winter.

#### ALCHOLISM.

This is another fresh division, and a very useful one. Hitherto it has been customary to assign all diseases of the liver, whether due to cirrhosis or not, to “all other causes.” I am unable to say if nine deaths from this cause is more or less than usual.

#### PREMATURE BIRTHS.

This is also an innovation and I am pleased to see it, because I have often been exercised in lumping together so many deaths to “all other causes,” when they could have been easily analysed in a more methodical manner.

## ALL OTHER CAUSES.

The deaths entered in this division are much fewer than usual, nearly one hundred less than the average ; but this is accounted for by the more scientific recent arrangement in other divisions, and give occasion for no special remark.

## DISEASES SUBJECT TO NOTIFICATION.

The following new table will be of interest, inasmuch as it shows how little notifiable disease we had last year.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN TORQUAY IN 1900.						
	At all Ages.	At Ages—Years.					
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
Small-pox .. ..							
Cholera .. ..							
Diphtheria .. ..	8	1		1	3	3	
Membranous croup ..							
Erysipelas .. ..	7			3	1	3	
Scarlet fever .. ..	36		2	30	3	1	
Typhus fever .. ..							
Enteric fever .. ..	7			1	2	4	
Relapsing fever .. ..							
Continued fever .. ..							
Puerperal fever .. ..							
Plague .. ..							
Totals .. ..	58	1	2	35	9	11	

Thirty-three of these patients were isolated in hospital, viz., one of diphtheria, and thirty-two from scarlatina.

## DIPHTHERIA.

In six of these cases defects in the sanitary condition of the home were found, in one none were detected, and one case was imported.



### ERYSIPELAS.

Each house has been examined, and the room occupied by the patient fumigated. Four houses were very unhealthy, and in three nothing wrong was detected.

### SCARLATINA.

Of the thirty-six cases three were imported, and the others were of local origin or infection, though very difficult to trace. They were all very mild in character, and in no instance, owing to prompt removal, did the infection spread to a second case; nor has there been a "return case."

### ENTERIC FEVER.

Three of the cases were undoubtedly imported, and in the homes of three ample defects were found; in one only neither history or defect existed that could account for the case. It is a good deal to say for the sanitation of a town of thirty-six thousand inhabitants, that only four cases of typhoid fever occurred in twelve months; all were mild and there was no fatality.

### INFECTIOUS DISEASES AND SCHOOL ATTENDANCES.

During the past year I have had to advise that Torwood, St. Matthias', and St. John's Schools should be closed on account of measles; and that Ellacombe Infant and St. Matthias' Schools be closed because of an outbreak of mumps.

### WATER SUPPLY.

At last I am able to report that every house on the watershed has been emptied, and that no human being lives thereon. The farm buildings, cowsheds, and stables where not already pulled down are empty, and homes for those who look after the property have been built in safe positions off the watershed. Although the past summer and autumn have been exceptionally dry, and the supply of water in the reservoirs reached a very low level, yet the quality of the water was satisfactory, and no complaints were

brought to my notice. It will take some years yet before the results of the agricultural use of the watershed quite disappears from the water, but that it will gradually reach the highest standard of purity I have not the least doubt. I have tested samples of water from twenty-one public wells, and with one exception found no reason to doubt their purity.

#### SALE OF FOOD AND DRUGS ACT.

Samples have been taken and submitted to the County Analyst of the following articles :—Tea, 6 ; milk, 29 ; sugar, 6 ; flour, 6 ; butter, 12 ; Mustard, 6 ; ice cream, 4 ; beer, 15 ; sweets, 5, and all were reported to be sound and free from adulteration. I am indebted to Mr. Roberts, Superintendent of the County Police, for his promptness in taking these samples, especially in the last two cases. As soon as the accounts of arsenical poisoning from beer appeared in the Medical papers, I went to Mr. Roberts and asked him to at once make a raid, and as far as possible to include the products of all the various breweries which supply Torquay. He promptly did so, and the results were reported to your Sanitary Committee long before the circular of the Local Government Board directing such a proceeding was issued. The five samples of cheap sweets were taken, and submitted at the same time.

#### ICE CREAM MANUFACTORY.

In July I visited the places where the peripatetic ice cream vendors prepare their wares, so as to ascertain under what circumstances this delicacy is produced.

I must begin by describing the process of converting milk into ice cream. Milk is boiled with eggs, sugar, flavouring, and a little corn flour, and then put aside to cool ; and this cooling must be effected naturally. The mixture when cold is put into a metal vessel and stirred violently, either by hand power or steam engine, and while being stirred the vessel is surrounded by a composition of ice and salt. When sufficiently frozen and set the lid of the vessel

is fitted, and the ice and salt around is renewed if necessary, and so handed out to the carts or barrows for sale in the streets.

Altogether I visited four places, and all were kept by Italians.

A made his goods in a stable, and where I expect the cooling process went on at night time. I also saw the room where he boiled the ingredients, and certainly I should not like to eat anything prepared in that room, or by that cook.

B manufactured his ware in a common lodging house ; the boiling was performed in a boiler devoted to other purposes on washing day ; and the cooling took place in the back yard of a by no means savoury looking house.

C also worked in a stable and cart shed, and the cooling place was the loft where a chaff cutter was worked. Here there was a steam engine to do the stirring, and evident signs of a good deal of capital being employed in the business.

D made his ices in a woodshed, where he saws wood when ices are not required ; and the cooling took place in the wash house, no matter what was hanging up to dry.

Now as milk is the principal constituent in ice cream, I did not see why the Dairy and Cowshed Act could not be invoked ; and very soon one stable was shut up, another was reconstructed and rendered suitable for its new purpose, and the other places seen to in respect of cleanliness.

But generally speaking, the manufacture of penny ices is not carried on under satisfactory surroundings ; nor are the people who make them acquainted with ordinary notions on the subject of cleanliness. Perhaps in 1901 I may be able to look into this matter more closely.

#### DAIRIES, COWSHEDS, AND MILKSHOPS ORDERS.

A new series of regulations were compiled and passed last year, and which will effect a better control over this important trade.



I very much regret that during the process of amalgamation of St. Mary-Church and Cockington with Torquay, it was found necessary to exclude the rural portions. Very little of the milk sold in the Borough is produced here; it all comes from outside. In the excluded districts there were very many dairies and dairy farms, and over these we now have no control whatever. I am strongly of opinion that the people who consume the milk should be able to supervise the manner in which it is handled and sent into the town, and generally to watch its progress from the cow to the consumer.

#### NEW DRAINAGE WORKS.

The sewerage and laying on water to the district of Barton has made great progress. When completed it will affect seventy-seven houses, and two hundred and thirty inhabitants. This will be a most judicious expenditure of about seven thousand pounds.

#### BAKEHOUSES.

I have inspected fifty-nine bakehouses, and have found but slight reason to complain of their condition.

#### DISTRICT INSPECTION.

I have made several general district inspections, and certain portions have been carefully and completely overhauled. The details of this work will be found in Mr. Watson's report.

#### NOTIFICATION OF PLAGUE.

On receipt of a notice from the Local Government Board, circulars were sent to each medical practitioner in the Borough, calling on him to notify any cases of plague which might be met with in his practice. I need hardly say that we have heard nothing of such cases, nor do we expect to.

I append the sixteenth annual report on the Sanatorium, and remain,

Mr. Mayor and Gentlemen,

Your obedient servant,

PAUL Q. KARKEEK, M.R.C.S., & L.S.A.,

*January 22nd, 1901.*

*Medical Officer of Health.*

# BOROUGH OF TORQUAY.

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## THE MEDICAL OFFICER'S SIXTEENTH REPORT ON THE SANATORIUM

*For the Year ending 31st March, 1900.*

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TO THE CHAIRMAN OF THE SANITARY COMMITTEE.

SIR,

At the close of the financial year, 1898-1899, there were two patients under treatment, and from that date to March 28th, 1900, forty fresh cases were admitted, making a total of of forty-two patients who have been inmates of the Sanatorium during the year 1899-1900.

Two were cases of diphtheria, and the others were all Scarlatina. The diphtheria patients recovered, and so did the Scarlatina cases, except one, who died of Tubercular Meningitis, and five who were still under treatment on March 28th, 1900.

Three of the patients, being visitors, paid for their residence and maintenance according to the scale of charges, four came from hotels, one from a charitable home, two from the Torbay Hospital, one from a common lodging house, four from villas, and the

remainder from homes of the trading and working classes; and twenty-seven had the fee for medical attendances paid for them, as compared with seventeen in the previous year.

The average duration of the patients' stay was fifty-one days, but eight were in for more than seventy days, and one even as long as ninety-three days. As I have explained in previous reports, the duration of stay depends upon the peeling process, and this varies with each individual. There has been no "Return Case" for the year, and the system of keeping the patients a few days longer rather than being in a hurry to discharge, seems to answer.

The cost of working during the twelve months will be seen from the following accounts :—

EXPENDITURE.						£	s.	d.
Diet of Patients	..	..	..	..	..	134	12	3
Wages and Diet of Nurses..			..	..	..	139	6	6
Laundress	..	..	..	..	..	55	13	0
Curator	..	..	..	..	..	56	4	0
Surveyor's Accounts		..	..	..	..	10	13	5
Tradesmen's Accounts		..	..	..	..	48	7	8
Rent, Rates, and Insurance			..	..	..	20	13	11
Drugs	..	..	..	..	..	5	18	1
Medical Fees	..	..	..	..	..	28	7	0
Conveyance of Patients		..	..	..	..	9	9	0
Coal, Coke, and Wood		..	..	..	..	44	8	0
Rent of Telephone	..	..	..	..	..	10	10	0
						<u>£564 2 10</u>		
RECEIPTS.								
Paid by Patients	..	..	..	..	..	44	14	0
Deficit	..	..	..	..	..	519	8	10
						<u>£564 2 10</u>		

These figures should be compared with those of previous years :—

1896	Report	....	80	Patients	....	Cost,	726	10	3	....	Deficit	639	6	10
1897	"	....	58	"	....	"	609	19	7	....	"	547	0	7
1898	"	....	30	"	....	"	493	13	2	....	"	463	19	2
1899	"	....	35	"	....	"	513	14	11	....	"	496	18	11
900	"	....	42	"	....	"	564	2	10	....	"	519	8	10



The average cost per diem of each patient has been 4s. 10 $\frac{1}{4}$ d. as compared with 5s. 6d. last year.

The inventory has been gone through and replacements made where necessary.

The resident staff have given every satisfaction to the patients, the medical practitioners attending the cases, and myself, and I may add that I have not received a complaint for the whole year.

I remain, Sir,

Your obedient servant,

PAUL Q. KARKEEK, M.R.C.S. & L.S.A.,

*Medical Officer of Health.*

*August 1st, 1900.*

BOROUGH OF TORQUAY.

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ANNUAL REPORT

OF

THE SANITARY INSPECTOR.

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*To His Worship the Mayor, Aldermen, and Councillors  
of the Borough.*

GENTLEMEN,

I have the privilege to make to you my Twenty-Third Annual Report on the various branches of Sanitary duties which devolved upon me during the year 1900.

The work of house examination, whether for a Sanitary Certificate, or in the ordinary course, becomes each year more arduous, owing to the exacting nature of modern sanitary requirements, and the severity of the tests applied, to secure reliable results.

The following figures denote the nature of the improvements effected in the one hundred and twenty-five villas and ordinary dwellings which I examined, and to which three hundred and twenty-one tests were applied, two hundred and ninety being by the smoke machine.

- 89 New Sanitary conveniences were fixed, and
- 64 Flushing cisterns were needed and supplied.
- 38 New external soil pipes fixed.

- 68 Ditto ventilated and other ventilators.
- 62 Fresh air inlets provided.
- 95 Inspection chambers were constructed.
- 85 Intercepting traps fixed, and
- 277 Gully or other approved traps.
- 64 Waste pipes disconnected or trapped.
- 35 Sketch plans taken of new drainage systems.
- 87 New pipe drains were laid.
- 23 Masonry drains or traps, and old tanks abolished.
- 83 Choked drains were cleared.
- 4 Yards paved or cemented.
- 2 Well water samples taken.
- 3 Areas were excavated in front of houses and drained.
- 5 Bedrooms were provided with ventilators.
- 7 Manure or ash pits were covered or provided.
- 5 New urinals were built, three in hotels.
- 5 Water wasting cases were reported.
- 18 Better supplies of drinking water were provided.
- 10 Overcrowding cases were abated,
- 48 Nuisances from pigs and fowls and manure were dealt with.
- 94 Premises were cleansed or fumigated, and disinfectants supplied.
- 4 Smoke nuisances were modified on complaint.
- 320 Letters were written on the business of the Department, and
- 22 Preliminary notices were served, and no legal ones were found necessary.
- 44 Fees for the smoke test were paid.

Omitting the testings and the number of houses tested, these figures produce a total of 1,273 sanitary operations carried out on 389 separate premises.

Periodical visits were made to the Common Lodging Houses, Slaughter House, Marine Stores, and places where offensive trades are carried out, and where nuisances existed steps were immediately taken to secure abatement.

I also inspected the Milkshops, Dairies, and Cowsheds in the old Borough, and, in addition, those situate in the Chelston Ward during the last days of the year; also one of the cowsheds much complained of at St. Mary-Church, but as I have not been able, on several visits after dark, to find cows in the sheds, it does not seem possible to take legal action,



I may observe that the great majority of the Milkshops and Dairies were found in a creditable state of cleanliness, but some few needed an alteration of the structural arrangements.

The number of new buildings erected in Torquay during 1900 was 24, chiefly in the Upton district, some in the new thoroughfare, Morgan Avenue, and a few at Crownhill and Ellacombe ; also near Trinity and the Scotch Churches ; all were duly surveyed by me prior to occupation, and most of them were quite satisfactory.

The most interesting case of house inspection during the year is that of Villa Syracuse, which early in January was placed at the disposal of an influential Committee for the purpose of a Home for Soldiers, convalescent from the South African War. I was requested to go over the handsome villa and report on its sanitary condition. As I found that the War Department exacted a high state of the drainage system and of all internal arrangements before consenting to send on a single patient, I bestowed the utmost care on the matter, and though the Committee were most anxious to get patients into the Home, I felt compelled to hold back the certificate till nearly the end of February, since when the Institution has been more or less full, and no word of complaint has reached me of any failure of the sanitary system reconstructed under my supervision.

I am, Mr. Mayor and Gentlemen,

Yours obediently,

CHARLES MACMAHON,

*Cert. San. Inst. ; Asso. M.B.I.P.H. ;*

*Chief Sanitary Inspector and Surveyor of New Buildings.*

# BOROUGH OF TORQUAY.

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## Assistant Sanitary Inspector's Report.

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*To His Worship the Mayor, Aldermen, and Councillors  
of the Borough.*

GENTLEMEN,

I beg to submit to you my Third Annual Report for the year ending December 31st, 1900.

Ninety-two tenement and other houses and premises, with a population of five hundred and five, have been inspected under the house to house inspection, and in sixty-one instances the drainage of the houses were tested.

In connection with this work, seventy-two notices have been served to abate the various nuisances found on such inspection. Sixty-four of these notices were preliminary, and eight legal.

In one instance it was found necessary to take magisterial proceedings against the owner of two houses, to abate nuisances under the Public Health Act. In each case a conviction was obtained, and a fine of £1 1s. and all costs imposed.

The Districts inspected were :—

Tor Square Cottages (part), Hoxton Road (part),  
Pimlico (part).

Ninety-six houses and premises have been visited and inspected upon complaint or by request, and fifty-six smoke or hydraulic tests applied to drains, and fifty-five notices served to abate nuisances.

Two hundred and fifty-eight visits of inspection have been made to premises where work was in progress, and also one hundred and fifty-four smoke, and seventy-two hydraulic, tests applied to drains after alterations to same.

Twelve houses have been examined and reported upon and drainage tested for certificates on the payment of the 10s. fee, and upon the completion of the necessary work the certificates were granted, except in one instance, where the work was not carried out according to the requirements. Five of the houses were "Homes for the treatment of Consumption," and were re-drained.

Thirty houses and premises in Barton have been inspected in regard to the connection of the drains to the new sewer, and the laying on of water from the main.

Also the drains of twelve houses in St. Mary-Church and their connections to the sewer have been tested, and six notices served to remedy defects.

Fifteen rooms have been disinfected where 2 typhoid fever, 5 scarlet fever, 5 diphtheria, and 3 erysipelas cases occurred ; also 20 rooms have been disinfected after death from consumption, and 2 rooms after death from cancer and influenza, a total of 37 disinfections.

The houses have been examined and the drainage tested in twelve instances, and twelve notices were served to remedy defects found.

Seven premises illegally occupied as cellar dwellings have been closed,



The total number of notices served during the year was one hundred and forty-five; one hundred and thirty-five were preliminary, and ten legal.

Two hundred and ninety-two letters have been written on the business of the department.

I am, Mr. Mayor and Gentlemen,

Yours obediently,

WILLIAM B. WATSON,

*Cert. San. Inst.; Sanitary Inspector.*

# BOROUGH OF TORQUAY.

## SCHOOL ATTENDANCE.

### Annual Reports

*For the Year ending 31st December, 1900.*

TO THE SCHOOL ATTENDANCE COMMITTEE OF THE  
BOROUGH OF TORQUAY.

GENTLEMEN,

The usual returns received from the head teachers of the Elementary Schools in that part of the Borough for which I am your attendance officer shew results as follows, viz. :—

	Average Number on Books.	In Average Attendance.	Percentage on Average Attendance.
Year 1900.	3116	2628·8	84·3
„ 1899.	3111	2564·8	82·4
	—	—	—
	Increase 5	Increase 64·0	Increase 1·9

Year 1900. The percentage on average attendance of Boys was 88·1 ;  
Girls, 84·96 ; and Infants, 81·24.

The returns for 1900 shew there are 933 Boys, 898 Girls, and 1,285 Infants average number on the school registers, and in average attendance 821·7 Boys, 763·3 Girls, and 1,043·8 Infants. Included in the number of infants there are 516 who are under five years of age.

The attendances at Ellacombe, St. John's, and Ilsham Schools were adversely affected through sickness amongst the children at different parts of the year, principally measles and chicken pox.

The School Attendance Committee held 11 ordinary meetings during 1900, and dealt with 407 complaints ; 257 warning letters were sent to parents of irregular children, 7 notices of illegal employment issued, 67 summonses were ordered, and 3,801 visits were made by your officer to the parents of children who were absent from school.

The results of prosecutions were 41 fines, 3 boys committed to the Truant School, 21 attendance orders granted, 1 case withdrawn, and 1 dismissed with a caution. The latter was again prosecuted and fined for the same child during the year.

The fines inflicted were two of 7s 6d., two of 6s., twenty of 5s., five of 4s., eight of 3s. 6d., one of 3s., and three of 2s. 6d. each. Total amount of fines, £8 5s. 6d.

In addition to the three boys committed to the Truant School by the Magistrates, two were returned there for their second and one for his third time, through having broken the terms of their licenses.

There are at present two boys on board the Mount Edgecumbe Training Ship, one in the Devon and Exeter Industrial School, one in the Somersetshire Industrial Home, and one in the Plymouth Truant School, who were sent to the institutions named on the application of your Committee.



There is also one boy in the West of England Institution for the Blind who is chargeable to the Borough.

I beg respectfully to thank the Magistrates and School Attendance Committee for their kind support, and remain,

Gentlemen,

Your obedient Servant,

G. R. STONE,

*School Attendance Officer.*

*Dated January 18th, 1901.*

## PROSECUTIONS, &c., DURING 1900.

During the year 257 warnings and 7 employers' notices have been issued and proceedings taken in 67 cases, with results as follows, viz. :—

	No. of Cases.	Fined.	Dismissed.	Withdrawn.	Committed to Truant School.	Industrial School.	£	s.	d.
Under Bye-laws ..	36	35	1	—	—	—	6	19	6
Attendance Orders granted .. ..	22	21	orders granted	1	—	—			
Non-compliance with Attendance Orders .. ..	9	—	—	—	3	—	1	6	0
<b>Total amount of Fines .. ..</b>							<b>£8</b>	<b>5</b>	<b>6</b>

# **BOROUGH OF TORQUAY.**

Return of Average Number of Children on Books of the undermentioned Elementary Schools, with the Average Attendance, &c., for the year ending 31st December, 1900.

NAME OF SCHOOL.	BOYS.		GIRLS.		INFANTS.			REMARKS.
	Average No. On Books.	In Average Attendance.	Average No. On Books.	In Average Attendance.	Average No. On Books.	In Average Attendance.	Number under five years of age.	
Tor .. ..	176	162·	177	153·7	150	126·1	52	
Upton .. ..	186	163·0	179	158·0	89	71·9	47	
Torwood .. ..	63	54·9	65	58·5	68	47·0	31	
S. Luke's, Pimlico ..	116	99·0	81	70·0	102	82·0	49	
S. Luke's, Rock Road (Infants.)					82	66·6	17	
Ellacombe .. ..	300	261·0	279·5	230·4	327	266·0	138	Infants' School closed four weeks through an outbreak of Mumps.
Victoria Park (Infants.)					89·9	76·4	37	
S. John's .. ..	42	36·0	75	56·0	67	55·0	28	Closed four weeks---Measles.
Ilsham .. ..	26	22·6	25	21·4	32	24·2	11	Closed for six weeks---Measles. And three weeks---Mumps.
S. James' .. (Infants.)					255	210·0	92	
Roman Catholic ..	24	22·8	17	15·3	24	18·8	14	
TOTALS ..	933	821·7	898	763·3	1285	1043·0	516	

## REPORT

*For the Year ending 31st December, 1900.*

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*To the School Attendance Committee of the Borough  
of Torquay.*

GENTLEMEN,

In presenting to you this, my First Annual Report, I beg to state that the returns shew there are 95 Boys, 104 Girls, and 78 Infants on the School Registers ; and an average attendance of Boys 93, or 96 per cent. ; Girls 93, or 88 per cent. ; Infants 63, or 80 per cent. 33 of the infants are under 5 years of age ; average attendance 22, or 66 per cent.

I am, Gentlemen,

Yours obediently,

A. HUGO,

*School Attendance Officer.*



# METEOROLOGICAL REPORT

FOR THE YEAR 1900.



*To the Worshipful the Mayor, Aldermen, and Councillors  
of the Borough of Torquay.*

GENTLEMEN,

I have the honour to submit the Annual Report of the Meteorological Observations taken at the Borough Observatory, Chapel Hill, and Cary Green during the year 1900.

The observations were taken daily in accordance with the rules of the Royal Meteorological Society.

The Instruments have been in continuous use, and have been kept in good working order throughout the year.

The station was visited in August by Mr. Marriott, the Assistant Secretary of the Royal Meteorological Society, who examined and approved the temperature, rain, and sunshine instruments, and by Mr. R. H. Curtis, representing the Meteorological Office. Both these gentlemen visited and approved the new site in the Princess Gardens, selected by the Sanitary Committee for the instruments removed from Chapel Hill, but Mr. Marriott suggested that the enclosure on Cary Green should be retained for the present, in order that the new readings might be carefully checked. This recommendation was adopted, and the Cary Green readings are still recorded.

The usual Climatological Observations have been furnished monthly to the Royal Meteorological Society, and general observations and full details as to rainfall to Mr. H. Sowerby Wallis for publication in "British Rainfall."

Full monthly reports, as read to the Council, have been sent to the Torquay Natural History Society, to the "Torquay

Directory" and "Times," to the "Western Morning News," and the "Western Daily Mercury," and have been posted at the stations in various parts of the town.

A weekly report of bright sunshine has been sent throughout the year to the Meteorological Office, for which the thanks of the Council have been returned; and the customary weekly return of general observations has been contributed to the "Torquay Directory." This has also been sent since June to the "Devon and Exeter Gazette." Notes, with reference to exceptional weather or special phenomena, have been supplied from time to time to the local press.

A daily telegraphic report of the day's weather, with detailed figures, has been furnished to papers as under. To those marked with an asterisk in the summer months only—"London Standard," "News," "Chronicle," and "Leader," "Western Morning News," "Western Daily Mercury," \*"Manchester Guardian," \*"Leeds Mercury," \*"Bradford Observer," "Liverpool Post," "Journal of Commerce," "Sheffield Telegraph," "Glasgow Daily Mail," "Newcastle Chronicle," "Birmingham Post," "Bristol Mercury." Through this medium the many climatic advantages that we enjoy both summer and winter have been placed before thousands of readers, and I have abundant evidence that the reports and figures are carefully read by many who find their way to Torquay.

During the year weather reports have been regularly received from the Meteorological Office, and have been duly posted on Chapel Hill. These will now be more effectually shewn from the new office in the Princess Gardens.

A new Campbell-Stokes Sunshine Recorder has been recently purchased, and will be fixed upon the band stand on the Pier in order that readings may be carefully checked by those taken by a similar instrument retained at Chapel Hill.

I am, Gentlemen,

Your obedient Servant,

FREDK. MARCH.

## THE INSTRUMENTS.



The following are the instruments and appliances in regular use, those marked with an asterisk being the property of the Torquay Natural History Society, and by them lent to the town :—

\* The **Barometer** is a Fortin Standard and is read twice daily, at 9 am (local time) and at about 5 p.m. All readings are reduced to 32° F. and mean sea level, and are thus comparable with all readings similarly reduced.

\*An **Aneroidograph**, by Richard Freres, gives in graphic manner the alternations of pressure.

There are two double louvred **Stevenson's Screens**, each containing **Dry**, and **Wet Bulb** and **Maximum** and **Minimum Thermometers**. The instruments are of Casella's make, and are so placed that the bulbs of the hygrometer are 4 feet above the level of the grass. One of these sets has been working throughout the year at Cary Green, where the official temperatures for the Meteorological Office and Royal Meteorological Society have been taken, the other at Chapel Hill.

A third \***Stevenson's Screen**, also double louvred, has been in position at Chapel Hill, and has held a \***Thermograph** or Self-recording Thermometer and an **Ozonometer**. The Ozone Test Papers and Scale used are Moffat's, and the principle on which the instrument works is the liberation of iodine by the action of ozone upon iodide of potassium contained in the paper, and the action of this



free iodine upon starch, in solution of which the paper has also been soaked. This is only a rough test, but it is the same for all stations, and is approximately correct.

**\*Solar Radiation Thermometers**, black bulb in vacuo and bright bulb in vacuo, are contained in a stand of their own, which has been placed on Chapel Hill.

The **Grass Minimum** is by Hicks, and was placed on grass at Chapel Hill about an inch above the ground. The position was not a good one, and it was no unusual thing in the summer to find the reading higher than that of the minimum thermometer in the screen.

The **Rain Gauges** are of copper by Casella and of Snowdon pattern. They were placed, one on Cary Green, one at Chapel Hill, with the upper edge 12 inches above the level of the ground.

The **Sunshine Recorders** are placed upon the roof of the office at Chapel Hill, 286 feet above mean sea level.

They are—

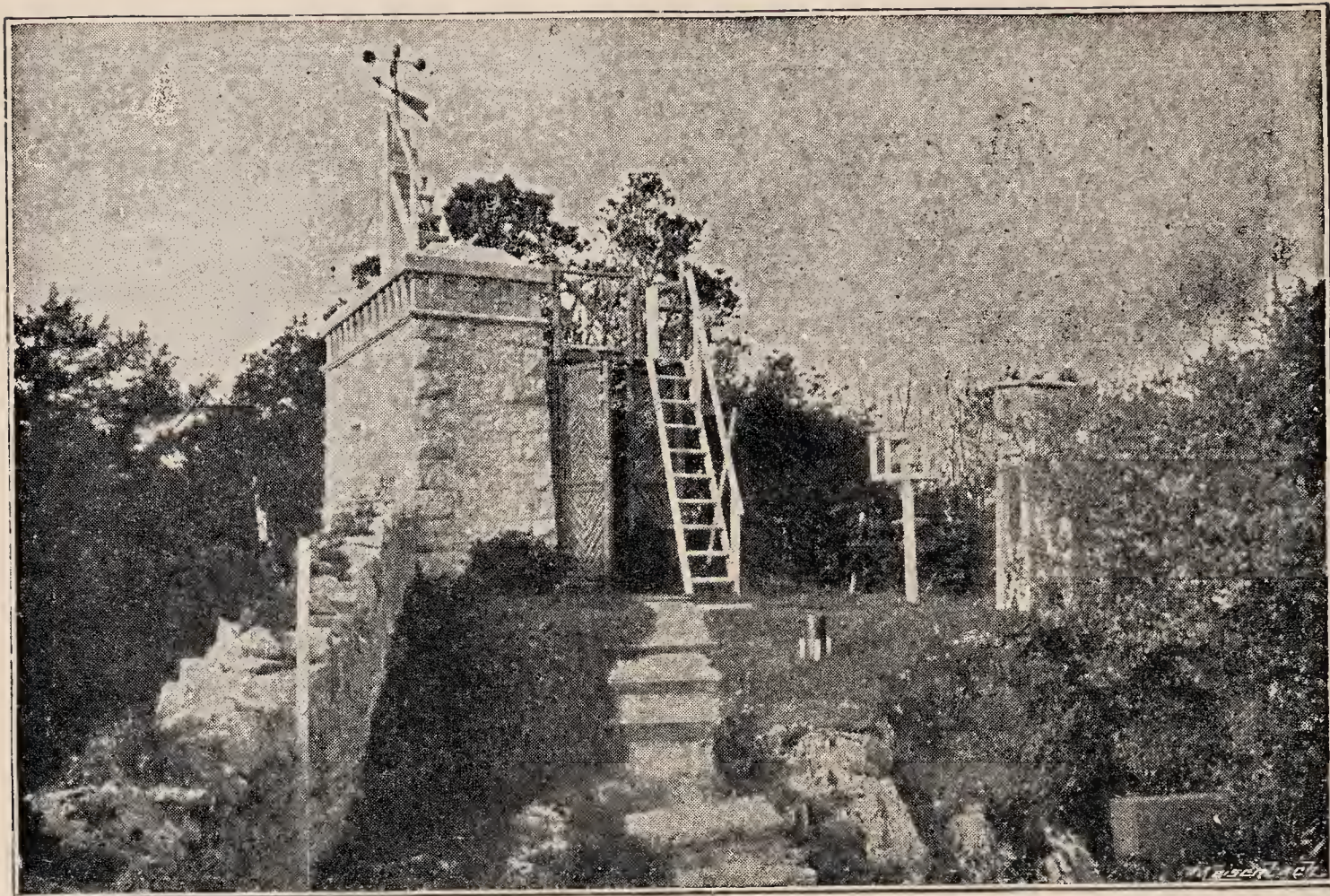
(1.) A Campbell-Stokes instrument, fitted with a  $3\frac{1}{2}$  inch spherical lens of crown glass, and working on the principle of the burning-glass; and

(2.) A Twin Jordan Photographic Recorder, which works by the differentiation in colour effected by bright sunlight on specially prepared chemical paper.

The **Anemometer**, for registering the horizontal velocity and direction of the wind, is a Robinson self-recording embossing instrument by Casella. The cups are of 5-inch diameter, and are fixed on 12-inch arms at Chapel Hill.







Chapel Hill Observatory, from the South.



Chapel Hill Observatory, from the North.



## THE OBSERVATORY.

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The Chapel Hill Observatory is built on limestone rock at the summit of the quarry, and at the back or N. side of the old ruined Chapel; about  $\frac{3}{4}$  mile from the sea, overlooking Torbay and the English Channel. The ground level is 276 ft., and the top of the building 286 ft. above mean sea level. The part of the building immediately under the Sunshine Instruments is built of solid limestone to prevent vibration.

The latitude is  $50^{\circ}29'$  N., and the longitude  $3^{\circ}32'$  W. = to 14 minutes after Greewich Mean Time.

The Cary Green Readings are taken 12 feet above mean sea level.

The Observatory is organised and maintained by the Town Council, and is under the supervision of the Royal Meteorological Society.

The several Barometers, Thermometers, and Rain Gauges have been verified at Kew Observatory, and regularly examined by a representative from the Royal Met. Society. Readings are all corrected for instrumental errors.

The Hygrometrical Results are deduced from the daily morning readings of the Dry and Wet Bulb Thermometers by means of Glaisher's Tables.

The averages for Sunshine are the result of 12 years', for Temperature and Rainfall of 24 years', and for Pressure of 16 years' observations.

# DURATION OF BRIGHT SUNSHINE

In hours and tenths of an hour,

As recorded by the Campbell-Stokes' Standard Instrument.

1900.	Total Bright Sunshine.	Percentage Actual of Possible.	Difference from Average.	Greatest Amount in one day.	Date.	Percentage Actual of Possible.	Sunless Days.
January ...	61·8	23·8	— 0·5	7·2	7th	85·3	12
February ...	81·5	29·5	+ 1·6	8·3	11th	85·6	9
March .....	109·2	30·0	— 38·5	9·5	30th	75·0	4
April .....	195·5	47·7	+ 18·8	12·7	26th	88·4	1
May .....	248·1	52·2	+ 24·2	14·5	29th	91·2	2
June.....	194·5	40·0	— 47·9	14·5	26th	89·0	1
July .....	295·7	61·0	+ 86·0	15·0	7th	92·0	—
August.....	256·0	58·0	+ 53·7	13·7	12th	95·0	2
September..	186·9	50·0	+ 22·3	12·1	3rd	91·0	—
October ...	142·2	44·0	+ 28·5	9·7	18th	92·0	4
November..	87·2	33·0	+ 26·2	6·8	11th	75·0	6
December..	38·5	16·0	— 16·1	5·7	10th	74·0	15
Year...	1897·0	40·4	+ 158·5	15·0	July 7th	92·0	56

## REMARKS.

A large amount of bright Sunshine was registered at Torquay during the year 1900. Though it fell short of the amount recorded in 1899—a remarkably bright year—by 141·9 hours, it was yet 158·5 hours above the average. In all there were 1897 hours of bright sunshine—an average of 5·2 hours per day—a record exceeded only by those of 1899 and 1892. The morning sunshine was 935·5 hours, and the afternoon sunshine 961·5.

Eight of the twelve months, including all the summer months except June, exceeded their respective monthly averages.

The brightest day was July 7th, on which 15 hours were registered, a percentage of 92, but the highest percentage of actual to possible sunshine, 95, was obtained later in the year, on August 12th.

The number of sunless days was 56, a proportion of 2 in 13. Bright sunshine was recorded *every day* in July and September, on every day but one in April and June, and on every day but two in May and August. December was the dullest month, with 15 sunless days.



# DURATION OF BRIGHT SUNSHINE

In hours and tenths of an hour,

As recorded by the Jordan Photographic Twin Instrument.

1900.	Total Bright Sunshine.	Percentage Actual of Possible	Difference from Average.	Greatest Amount in one day.	Date.	Percentage Actual of Possible.	Sunless Days.
January ...	56·5	21·7	— 5·8	7·1	7th	83·3	12
February ...	80·2	29·1	+ 0·4	8·1	11th	83·5	10
March .....	111·2	30·6	— 36·5	9·7	30th	76·6	4
April ... ..	199·1	48·7	+ 22·4	12·4	26th	86·3	1
May .....	241·9	50·9	+ 18·0	14·3	29th	90·0	2
June.....	187·8	38·6	— 5·45	12·7	26th	78·0	1
July .....	290·4	59·6	+ 80·7	14·6	10th	89·6	—
August.....	243·1	54·9	+ 40·8	13·4	12th	92·9	2
September..	196·1	52·6	+ 31·4	11·9	3rd & 6th	89·5	—
October ...	134·7	42·6	+ 21·0	9·2	11th, 18th	87·2	3
November ..	81·2	30·8	+ 20·2	6·8	11th	75·0	7
December ..	35·6	15·2	— 18·9	5·5	10th	71·4	13
Year...	185·99	39·6	+ 119·2	14·6	Aug. 12th	92·9	55

## REMARKS.

The total amount of Sunshine registered by the Jordan Recorder is 39·2 hours less than that by the Campbell-Stokes instrument, a difference of only  $6\frac{1}{2}$  minutes a day, or 2 per cent on the total.

The monthly amount by the photographic method is greater, speaking roughly, in the spring and autumn of the year, viz., in March, April, and September, and less in the summer and winter. In September, particularly, the Observer noticed that a lot of late sunshine, quite bright and very dazzling, lost to the C.S. instrument, was picked up by the Jordan. He can only suggest that at these periods heat rays are refracted or absorbed by the cirrus clouds in the neighbourhood of the sun.

A comparison of the readings of these two Recorders is of great interest.

## BAROMETRIC PRESSURE

In inches and thousandths.

Reduced to 32° F. and Sea Level.

1900.	<i>Mean</i> of Month.	Difference from <i>Mean</i> of Month.	Highest Reading.	Date.	Lowest Reading.	Date.
January ...	29·947	— 0·099	30·474	11th	29·173	3rd
February ...	29·566	— 0·461	29·978	9th	29·203	17th
March .....	30·011	+ 0·041	30·696	14th	29·156	19th
April .....	30·044	+ 0·181	30·560	19th	29·451	4th
May .....	29·969	+ 0·004	30·372	29th	29·433	3rd
June.....	29·949	— 0·066	30·235	1st	29·591	25th
July .....	30·040	+ 0·056	30·318	8th	29·661	2nd
August.....	29·981	+ 0·017	30·418	13th	29·443	3rd
September .	30·159	+ 0·146	30·547	12th	29·670	27th
October ...	30·037	+ 0·077	30·666	22nd	29·423	26th
November ..	29·753	— 0·190	30·371	19th	29·013	28th
December ..	29·967	— 0·033	30·583	16th	29·218	28th
Year...	29·952	— 0·028	30·696	Mar. 14th	29·013	Nov. 28th



## REMARKS.

The mean barometric reading for the year was 29·952 inches, being 0·028 inch below the average for sixteen years, and 0·050 below the mean of 1899.

The highest reading taken was 30·696 on March 14th; the lowest, 29·013 on November 28th, shewing an extreme variation of 1·683 inches.

The highest reading taken in Torquay appears to be 30·896 on January 9th, 1896.

The highest monthly readings were taken in September, mean 30·159; and the lowest in February, mean 29·566.

The highest monthly range was 1·365 inch in December; the lowest were 0·644 in June, and 0·657 in July. It is interesting to compare these figures with the totals of horizontal velocity of wind, from which it will be seen that December was by far the stormiest month and June and July among the calmest.

## RAINFALL

In inches and hundredths.

1900		Total Amount.	Difference from Average.	Wet Days.	Mean Wet Day Rainfall.	Greatest fall in 24 hours.	Date
January ...	*C. G.	5·36	+2·15	23	0·23	1·45	6th
„	†C. H.	5·73	+2·52	25	0·23	1·33	6th
February ...	C. G.	5·89	+3·22	20	0·29	1·13	14th
„	C. H.	6·08	+3·41	20	0·30	1·08	14th
March .....	C. G.	1·91	−0·57	13	0·15	0·42	21st
„	C. H.	1·85	−0·63	15	0·12	0·43	21st
April .....	C. G.	1·19	−1·19	11	0·11	0·33	3rd
„	C. H.	1·11	−1·27	11	0·10	0·30	3rd
May .....	C. G.	1·70	−0·32	9	0·19	0·42	2nd
„	C. H.	1·75	−0·27	10	0·18	0·49	2nd
June.....	C. G.	3·07	+0·88	15	0·20	0·53	14th
„	C. H.	3·29	+1·10	17	0·19	0·53	14th
July .....	C. G.	0·64	−1·81	7	0·09	0·17	31st
„	C. H.	0·72	−1·73	9	0·08	0·19	31st
August.....	C. G.	1·50	−1·27	11	0·14	0·46	6th
„	C. H.	1·64	−1·13	14	0·12	0·43	6th
September	C. G.	1·05	−1·31	8	0·13	0·32	26th
„	C. H.	1·06	−1·30	8	0·13	0·31	26th
October ...	C. G.	2·03	−2·10	17	0·12	0·61	4th
„	C. H.	1·64	−2·49	15	0·11	0·42	4th
November	C. G.	2·84	−1·10	20	0·17	0·45	5th
„	C. H.	3·13	−0·81	20	0·16	0·50	5th
December	C. G.	5·91	+2·24	26	0·23	0·78	30th
„	C. H.	5·42	+1·75	24	0·23	0·75	30th
Year.....	C. G.	33·09	−1·18	180	0·184	1·45	Jan. 6th
„ .....	C. H.	33·42	−0·85	188	0·178	1·33	Jan. 6th

\* Cary Green.

† Chapel Hill.

## REMARKS.

The total amount of rain (including such snow and hail as fell) collected during the year was 33·09 inches, of which 17·16 inches, or more than half, fell in the months of January, February, and December. The rainfall of these three months and of June was above, of the other eight months below, the average. July was a particularly dry month, with only 7 days on which the rainfall was a hundredth of an inch or more, and a total rainfall of 0·64 inch, being 1·81 inch below the average for the month. Indeed, the total rainfall of July was exceeded in a single storm that burst in the early morning of this month of January, 1901. April, August, September, and October were also abnormally dry, the rainfall being about half only of the usual amount.

The rainfall for the year was 1·18 inch below the average of 24 years, and 1·81 inch below the rainfall of 1899.

There were only two days on which over an inch of rain fell; the heaviest fall of the year was 1·45 inch on January 6th.



## SHADE TEMPERATURES.

Taken at 9 a.m. (Local Time).

1900.		Max. & Min. <i>mean.</i>	Difference from Average.	Range <i>mean.</i>	Maximum <i>mean.</i>	Minimum <i>mean.</i>	Highest.	Date.	Lowest.	Date.
		°	°	°	°	°	°		°	
Jan. ...	*C.G.	44.4	+2.5	8.8	48.8	40.0	55.2	8th	32.2	6th
"	†C.H.	43.4	—	8.0	47.4	39.4	52.7	8th	30.3	6th
Feb. ...	C.G.	41.1	-2.3	8.9	45.5	36.6	54.2	22nd	25.8	7th
"	C.H.	39.9	—	8.5	44.1	35.6	53.1	27th	25.3	7th
March.	C.G.	41.3	-2.7	9.7	46.1	36.4	56.2	12th	27.0	18th
"	C.H.	40.3	—	10.4	45.5	35.1	56.0	12th	23.9	18th
April..	C.G.	48.5	+0.3	12.4	54.7	42.3	63.4	22nd	34.2	1st, 2nd
"	C.H.	48.2	—	14.2	55.3	41.1	67.4	22nd	33.0	2nd, 27th
May ...	C.G.	51.9	-1.3	11.1	57.4	46.3	68.4	29th	40.4	14th
"	C.H.	51.5	—	13.8	58.4	44.6	69.9	29th	37.4	17th
June...	C.G.	57.9	-1.1	11.0	63.4	52.4	70.2	4th	48.2	2nd, 23rd, 27th
"	C.H.	57.7	—	13.4	64.4	51.0	72.8	5th	46.1	2nd
July ...	C.G.	63.8	+2.3	13.4	70.5	57.1	79.7	25th	49.2	3rd, 8th
"	C.H.	63.6		17.0	72.1	55.1	82.5	25th	46.8	8th
Aug....	C.G.	61.0	-0.7	13.1	67.5	54.4	74.4	14th	48.5	25th
"	C.H.	60.3		14.6	67.6	53.0	79.4	14th	45.9	25th
Sept. ...	C.G.	58.9	+0.7	13.9	65.8	51.9	72.9	8th	45.7	7th
"	C.H.	58.1		15.7	65.9	50.2	73.5	8th	43.3	20th
Oct. ...	C.G.	53.1	+1.5	11.3	58.7	47.4	63.4	7th	37.2	22nd
"	C.H.	52.6		12.1	58.6	46.5	63.5	7th, 8th, 9th	35.0	22nd
Nov....	C.G.	48.1	+0.7	9.7	52.9	43.2	62.2	4th	33.9	11th
"	C.H.	47.1		9.7	51.9	42.2	60.0	4th	30.2	22nd
Dec. ...	C.G.	47.8	+4.5	8.9	52.2	43.3	56.3	4th	33.7	3rd
"	C.H.	46.9		8.8	51.3	42.5	56.2	5th	33.7	1st
Year	C.G.	51.5	+0.4	11.0	57.0	45.9	79.7	July 25th	25.8	February 7th
	C.H.	50.8		12.2	56.9	44.7	82.5	July 25th	23.9	March 18th

\* Cary Green.

† Chapel Hill.

## REMARKS.

The mean temperature of the air, which is the average of the maximum and minimum, for 1900 was  $51^{\circ}5$  at Cary Green, and  $50^{\circ}8$  at Chapel Hill. The Cary Green mean is  $0^{\circ}4$  above the average for the last 25 years, and  $1^{\circ}3$  below the mean temperature of 1899.

The mean maximum temperature for the year was  $57^{\circ}0$  at Cary Green, and  $56^{\circ}9$  at Chapel Hill; the mean minimum was  $45^{\circ}9$  at Cary Green, and  $44^{\circ}7$  at Chapel Hill, giving a mean range of  $11^{\circ}0$  at Cary Green, and  $12^{\circ}2$  at Chapel Hill.

The highest temperature recorded was  $79^{\circ}7$  on July 25th. Other readings this day were:—Bath  $82^{\circ}$ , Dover  $83^{\circ}$ , Yarmouth  $81^{\circ}$ , Ramsgate  $89^{\circ}$ . The mean maximum temperature of Torquay during the heat wave of July was  $73^{\circ}5$ . The mean maximum temperature of other watering places during the same period was as under:—Bath  $79^{\circ}1$ , Bournemouth  $77^{\circ}4$ , Dover  $81^{\circ}0$ , Eastbourne  $74^{\circ}0$ , Leamington  $76^{\circ}5$ , Scarborough  $73^{\circ}2$ , Great Yarmouth  $77^{\circ}8$ , Ramsgate  $85^{\circ}0$ . These figures, taken from the "London Daily Chronicle" without selection, conclusively show how fallacious is the widely-spread idea that Torquay is "hot in summer." On the contrary, our readings, thanks to our westerly position, were during this excessively hot period among the lowest in the country, and were often  $10^{\circ}$  and  $15^{\circ}$  below those of the large towns, and of the East coast and inland watering places.

The lowest temperature recorded was  $25^{\circ}8$  on February 7th, so that the extreme range of temperature for 1900 was  $53^{\circ}9$ .

## SOLAR AND TERRESTRIAL RADIATION.

## ON GRASS.

1900.	Solar Max. <i>Mean</i>	Highest.	Date.	Max. Solar Radiation.	Minimum <i>mean.</i>	Lowest.	Date.	Number of Days at 32° and below.	Mean Night period Vari- ation of Min. on Grass from Min. in Screen.
	°	°		°	°	°			°
Jan. ...	66·4	85·3	28th	19·0	35·4	27·4	6th	9	— 4·0
Feb. ...	69·4	94·2	27th	25·3	32·3	20·4	9th	16	— 3·3
March..	82·1	102·7	14th	36·6	31·1	18·2	18th	16	— 4·0
April ..	98·5	111·0	17th	43·2	36·5	26·5	2nd	8	— 4·6
May ...	102·2	121·9	29th	43·8	41·6	33·9	12th	0	— 3·0
June...	105·6	119·9	10th	41·2	48·6	43·3	1st, 18th	0	— 2·4
July ...	116·4	127·5	26th	44·3	53·4	41·9	8th	0	— 1·7
Aug. ...	109·3	117·8	16th	41·7	51·5	44·3	25th	0	— 1·5
Sept ..	107·1	122·9	7th	41·2	48·0	41·6	20th	0	— 2·2
Oct. ...	101·1	112·0	3rd	42·5	43·8	32·5	22nd	0	— 2·7
Nov....	77·2	101·0	4th	25·3	39·2	28·8	22nd	6	— 3·0
Dec. ...	63·1	79·9	10th	11·8	39·7	31·0	1st, 22nd	3	— 2·8
Year	91·5	127·5	July 26th	34·7	41·8	18·2	Mar. 18th	59	— 2·9



## REMARKS.

The mean maximum solar temperature is taken with a sensitive maximum thermometer, which has the bulb and about an inch of the stem coated with dull lamp-black. The thermometer is enclosed in a vacuum tube and mounted four feet above the ground. The measure of solar radiation is found by subtracting the maximum reading of this instrument from the maximum of a shade thermometer, but the observation is imperfect and not of much value.

The mean minimum grass temperature is taken with a highly sensitive spirit minimum thermometer, placed horizontally on short grass.

The difference between the minimum thus taken and the minimum shade temperature gives the measure of terrestrial radiation. As already stated, the position of this instrument at Chapel Hill, on a limestone rock, was a bad one, and the radiation figures are probably too low.

There were 58 days of ground frost, of which 49 were after Christmas.

## HUMIDITY, CLOUD, AND OZONE.

1900	HUMIDITY.			CLOUD.	OZONE.		
	Dry Bulb <i>mean.</i>	Wet Bulb <i>mean.</i>	Relative Humidity.	Cloud <i>mean</i> 1 to 10.	<i>Mean</i> Daily Amount.	Greatest Daily Amount	Least Daily Amount.
	°	°	%		%	%	%
January .....	44·9	43·0	85	7·7	67·4	90	10
February .....	41·3	39·4	84	6·8	52·6	85	5
March .....	42·0	38·8	76	6·8	56·6	85	10
April .....	50·3	46·5	74	5·8	52·7	80	20
May .....	53·0	49·6	78	5·5	57·6	85	35
June.....	59·1	55·0	76	6·5	60·0	85	25
July .....	66·2	60·6	70	5·0	52·4	80	5
August.....	62·3	57·9	75	4·9	41·0	70	10
September ...	61·1	57·3	78	4·6	54·0	70	5
October .....	54·9	51·4	78	6·7	59·8	75	40
November ...	48·2	45·8	81	6·9	53·0	70	10
December ...	48·3	46·6	88	7·9	57·1	80	5
Year.....	52·6	49·3	78	6·3	55·4	90	5

## REMARKS.

The Dry Bulb Thermometer measures the temperature of the air at 9 a.m. The mean of this for the year was  $52^{\circ}6$  at Cary Green, and  $51^{\circ}6$  at Chapel Hill.

The Humidity of the air is reckoned from the difference between the Dry and Wet Bulb readings, in terms per cent. of the quantity necessary for saturation. The mean Humidity for 1900 was 78 %, or 0.4 % below the average for 24 years. As it is generally assumed that the air in Torquay is exceptionally moist, the following statistics relating to 1899 will be of interest:—

	Mean Humidity at 9 a.m.		Mean Humidity at 9 a.m.
TORQUAY	... 78 %	Ilfracombe	... 83 %
Southport	... 81	Brighton	... 79
Morecombe	... 84	Eastbourne	... 80
Harrogate	... 78	Weymouth	... 78
Llandudno	... 76	Newquay	... 84
Burton ...	... 80	Manchester	... 79
Lowestoft	... 87	London	... 76
Margate	... 82		

The mean daily amount of Cloud at 9 a.m. was 6.3, reckoned on the scale of 1—10.

The mean daily amount of Ozone was 55.4 % of the possible, varying from 5 % at the lowest to 90 % at the highest.



THE WIND.

DIRECTION AND VELOCITY.

In miles and tenths of a mile.

1900.	Total Horizontal Motion.	Mean Daily Velocity.	Mean Hourly Velocity.	Greatest Daily Velocity.	Mean Hourly Velocity of that day.	Greatest Velocity in One Hour.	Date.	Time.	Direction.		
									Southerly to Westerly	Northerly to Easterly	
									days	days	
January .....	8452	272.6	11.4	506	21.1	36.3	24th	3 to 4 p.m.	22	9	
February .....	7188	256.7	10.7	600	25.0	35.0	16th	1 to 2 p.m.	13	15	
March .....	5174	166.9	6.9	296	12.3	19.0	16th	1 to 2 a.m.	8	23	
April .....	7306	243.5	10.1	631	26.4	38.0	11th	5 to 6 p.m.	19	11	
May .....	6112	197.2	8.2	516	21.5	39.0	3rd	1 to 2 p.m.	17	14	
June .....	6200	206.7	8.6	511	21.3	27.5	25th	5 to 6 a.m.	24	6	
July .....	4722	152.3	6.3	327	13.6	25.0	6th	6 to 7 p.m.	20	11	
August .....	6060	195.5	8.1	598	25.0	36.0	3rd	3 to 4 p.m.	23	8	
September ...	4054	135.1	5.6	391	16.3	30.0	27th	2 to 3 a.m.	19	11	
October .....	7360	237.4	9.9	469	19.5	25.0	6th	1 to 2 p.m.	27	4	
November ...	6700	223.3	9.3	428	17.8	30.0	7th	1 to 2 a.m.	15	15	
December ...	10280	331.6	13.8	970	40.4	59.0	28th	9 to 10 a.m.	25	6	
Year.....	79608	218.1	9.1	970	40.4	59.0	Dec. 28th	9 to 10 a.m.	232	135	

## REMARKS.

The total horizontal motion of the air for the year was 79,608 miles, which compares with 79,523 miles in 1899. This gives an average movement of 218·1 miles per day, and of 9·1 miles per hour.

The greatest daily velocity, 970 miles, was attained on December 28th, the greatest hourly velocity on that day being 59 miles from 9 to 10 a.m.

The prevailing winds, reduced to eight points of the compass, were as under :—

January, S.W.	July, S.W., N.W.
February, S.W., N.W.	August, S.W.
March, N.E., N.W.	September, S.W., N.E.
April, S.W.	October, W., S.W., N.W.
May, N.E., S.W.	November, N.W., S.W.
June, S.W.	December, S.W.

From this it will be seen that westerly winds prevailed for the greater part of the year, and that the wind was mainly from the S.W. during the winter months.

